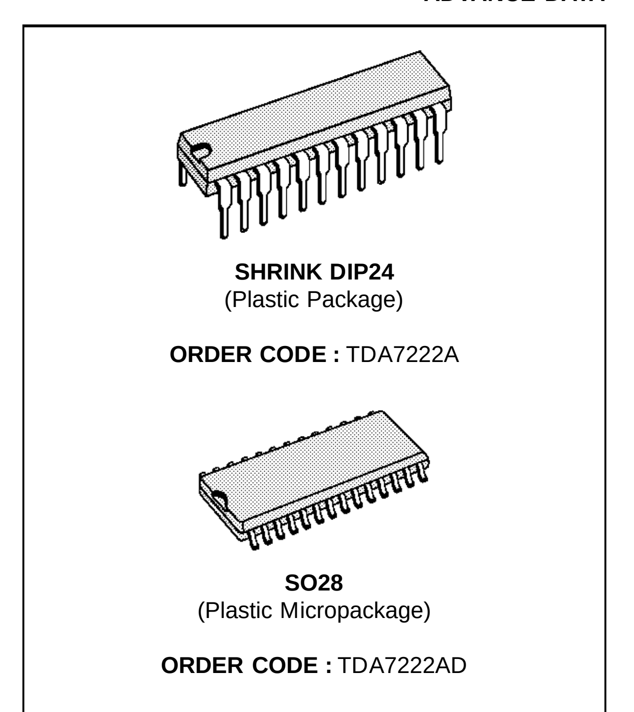


TDA7222A
TDA7222AD

3V AM/FM ONE-CHIP RADIO

ADVANCE DATA

- BUILT-IN FM F/E, AM/FM IF AND FM MPX
- AM DETECTOR COIL AND IF COUPLING CAPACITOR ARE NOT NEEDED
- COMPACT PACKAGE : 24-Pin Shrink
- OPERATING SUPPLY VOLTAGE RANGE $V_{CC\ (opr)}$ = 1.8 to 7.0V (T_A = 25°C)
- LED DRIVE CIRCUIT FOR TUNING INDICATION



SHRINK DIP24
(Plastic Package)

ORDER CODE : TDA7222A

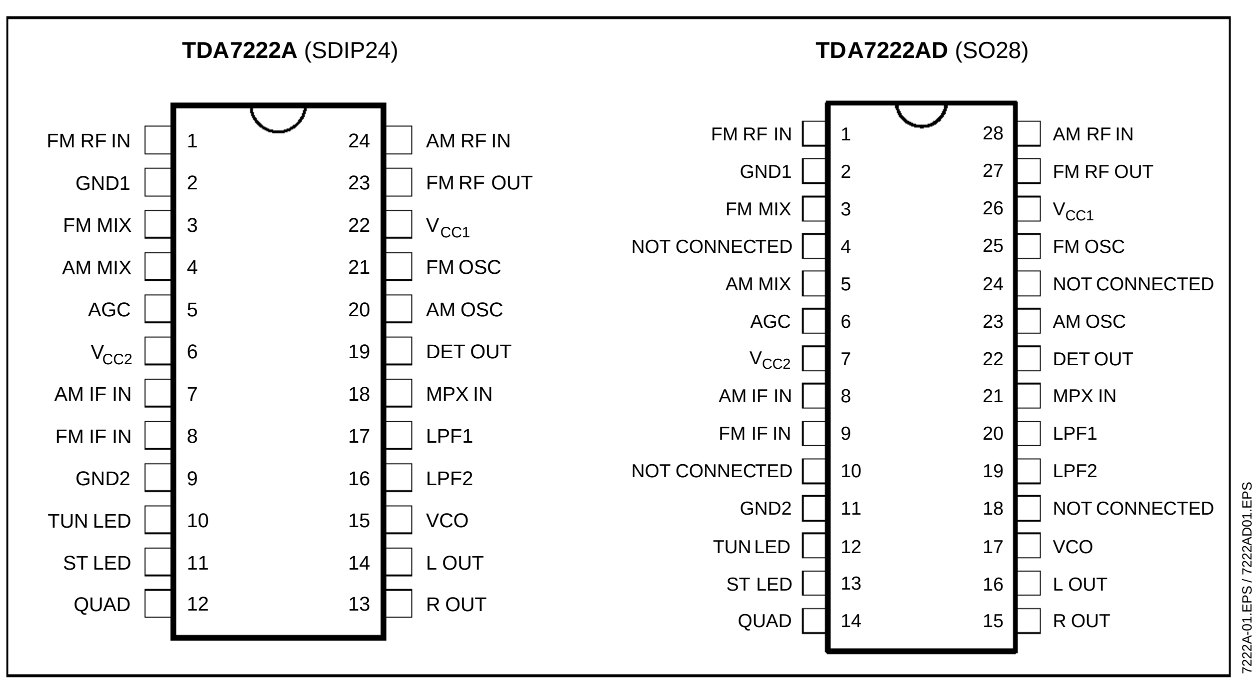
SO28
(Plastic Micropackage)

ORDER CODE : TDA7222AD

DESCRIPTION

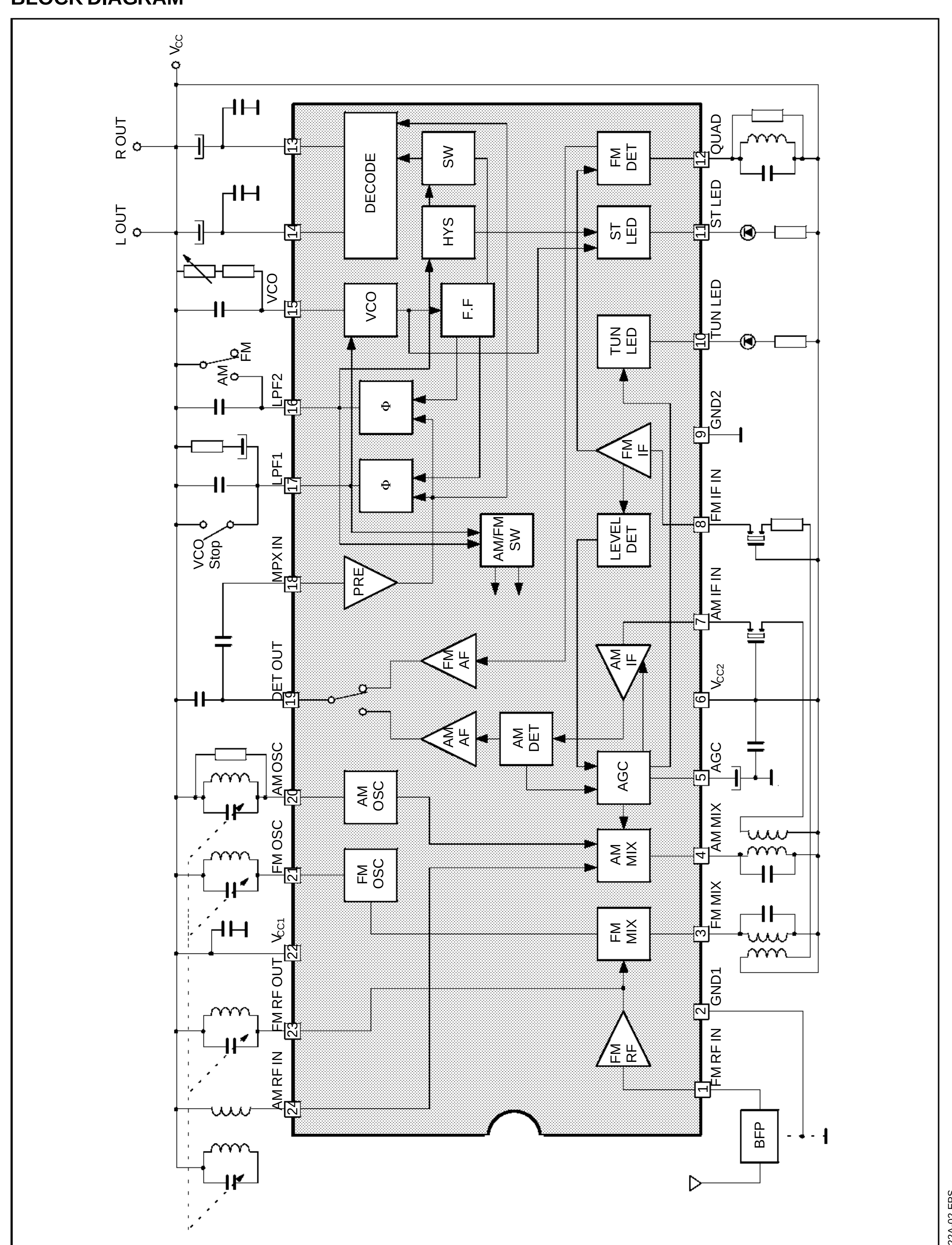
TDA7222A and TDA7222AD are AM/FM chip tuner ICs, which are designed for portable radios and 3V headphone radios.

PIN CONNECTIONS



This is advance information on a new product now in development or undergoing evaluation. Details are subject to change without notice.

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_S	Supply Voltage	9	V
I_{LED}	LED Current	10	mA
V_{LED}	LED Voltage	10	V
T_{oper}	Operating Temperature	-20, +70	^oC
T_{stg}	Storage Temperature	-55, +150	^oC

7222A-01.TBL

RECOMMENDED OPERATING CONDITIONS

Symbol	Parameter	Value	Unit
V_S	Supply Voltage	1.8 to 7	V
T_{oper}	Operating Temperature	0, +70	^oC

7222A-02.TBL

ELECTRICAL CHARACTERISTICS (unless otherwise specified)

$T_A = 25^oC$, $V_{CC} = 3V$ F/E : f = 83MHz, f_m = 1kHz
FM IF : f = 10.7MHz, $\Delta f = \pm$ 22.5kHz, f_m = 1kHz
AM : f = 1MHz, MOD = 30%, f_m = 1kHz
MPX : f_m = 1kHz

Symbol	Parameter		Test Conditions	Min.	Typ.	Max.	Unit
I_{CC} (FM)	Supply Current		V_{IN} = 0, FM mode		13.2	20	mA
I_{CC} (AM)			V_{IN} = 0, AM mode		8.4	13.5	mA
V_{IN} (lim)	F/E	Input Limiting Voltage	- 3dB limiting		10.0		dBµ
V_{OSC}		Local OSC Voltage	f_{OSC} = 72.3MHz		105		mV_{RMS}
V_{IN} (lim) IF	FM IF	Input Limiting Voltage	- 3dB limiting	40	46	53	dBµ
VOD		Recovered Output Voltage	V_{IN} = 80dBµ	55	80	110	mV_{RMS}
S/N		Signal to Noise Ratio	V_{IN} = 80dBµ		70		dB
THD		Total Harmonic Distortion	V_{IN} = 80dBµ		0.4		%
AMR		AM Rejection Ratio	V_{IN} = 80dBµ		32		dB
V_L		Lamp ON Sensitivity	I_L = 1mA	45	51	56	dBµ
G_V	AM	Gain	V_{IN} = 26dBµ	40	70	110	mV_{RMS}
VOD		Recovered Output Voltage	V_{IN} = 60dBµ	55	80	110	mV_{RMS}
S/N		Signal to Noise Ratio	V_{IN} = 60dBµ		42		dB
THD		Total Harmonic Distortion	V_{IN} = 60dBµ		1.0		%
V_L		Lamp ON Sensitivity	I_L = 1mA	20	25	30	dBµ
R19	Pin 19 Output Resistance		FM mode AM mode		0.75 12.75		kΩ kΩ
R_{IN}	MPX	Input Resistance			24		kΩ
R_{OUT}		Output Resistance			5		kΩ
$V_{IN\ (Max.)}$ Stereo		Max. Composite Signal Input Voltage	L + R = 90%, P = 10% f_m = 1kHz, THD = 3%		350		mV_{RMS}
Sep		Separation f_m = 100Hz f_m = 1kHz f_m = 10kHz	L + R = 135mV_{RMS} P = 15mV_{RMS}	25	32 32 32		dB dB dB
THD Monaural		Total Harmonic Distortion (monaural)	V_{IN} = 150mV_{RMS}		0.2		%
THD Stereo		Total Harmonic Distortion (stereo)	L + R = 135mV_{RMS} P = 15mV_{RMS}		0.2		%
G_V (MPX)		Voltage Gain	V_{IN} = 150mV_{RMS}	-5	- 3	- 1	dB
C.B.		Channel Balance	V_{IN} = 150mV_{RMS}	- 2	0	2	dB

7222A-03.TBL

ELECTRICAL CHARACTERISTICS (unless otherwise specified) (continued)

$T_A = 25^oC$, $V_{CC} = 3V$ F/E : f = 83MHz, f_m = 1kHz
FM IF : f = 10.7MHz, $\Delta f = \pm$ 22.5kHz, f_m = 1kHz
AM : f = 1MHz, MOD = 30%, f_m = 1kHz
MPX : f_m = 1kHz

Symbol	Parameter		Test Conditions	Min.	Typ.	Max.	Unit
V_L (ON)	MPX	Stereo Lamp (ON) Sensitivity	Pilot Input	2	6		mV_{RMS}
V_L (OFF)		Stereo Lamp (OFF) Sensitivity			2		mV_{RMS}
V_H		Stereo Lamp Hysteresis			3		mV_{RMS}
C.R.		Capture Range	P = $15mV_{RMS}$		± 3		%
S/N		Signal to Noise Ratio			70		dB

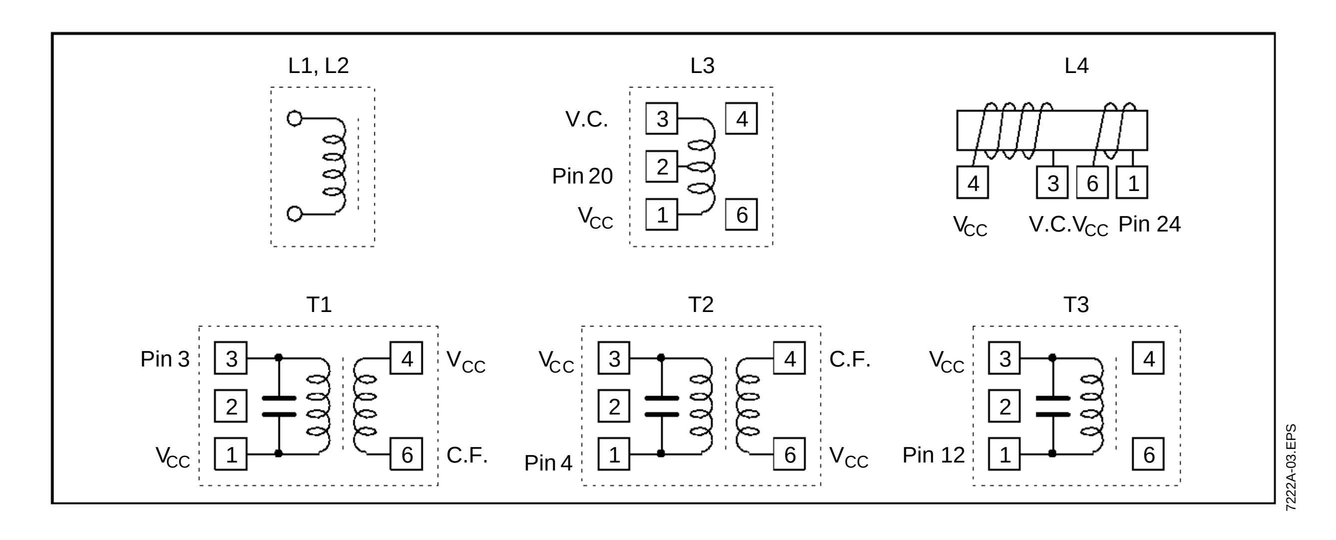
7222A-04.TBL

COIL DATA

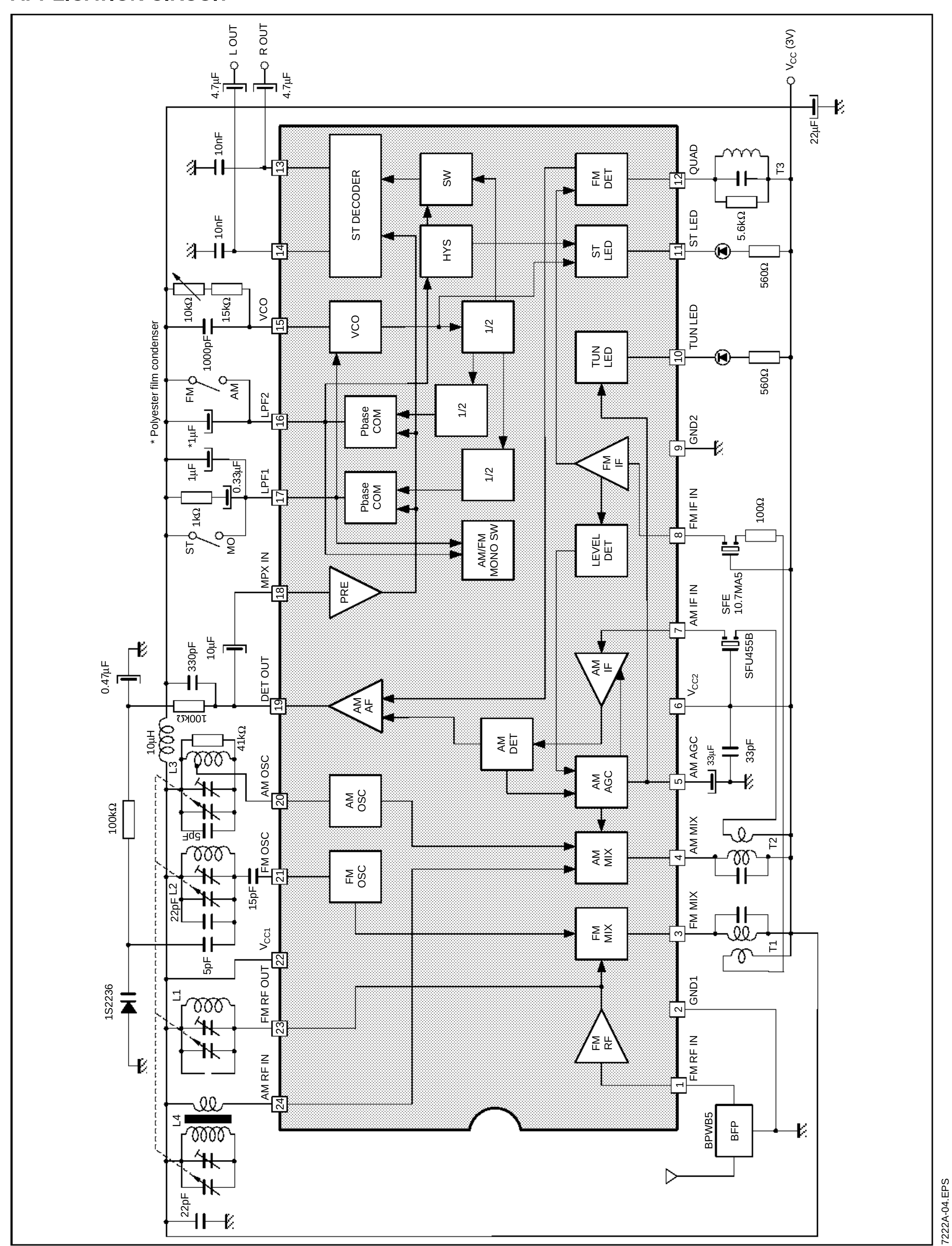
Coil N^o		f (Hz)	L (µH)	C_O (pF)	Q_O	Turns					Wire	Ref. *
						1 - 2	2 - 3	1 - 3	1-4	4 - 6		
L_1	FM RF	100M			100				$2\frac{1}{2}$		0.5∅ UEW	S -53T-037-202
L_2	FM OSC	100M			100			$2\frac{3}{4}$			0.5∅ UEW	S - 0258-24
L_3	AM OSC	796k	238		115	13	73				0.08∅ UEW	S - 4147-1356-038
T_1	FM MIX	10.7M		75	100			13		2	0.1∅ UEW	S - 2153-414-041
T_2	AM MIX	455k		180	120			180		15	0.08∅ UEW	S - 2150-2162-165
T_3	FM DET	10.7M		47	165			16			0.09∅ MUEW	S - 2153-4095-122

7222A-05.TBL

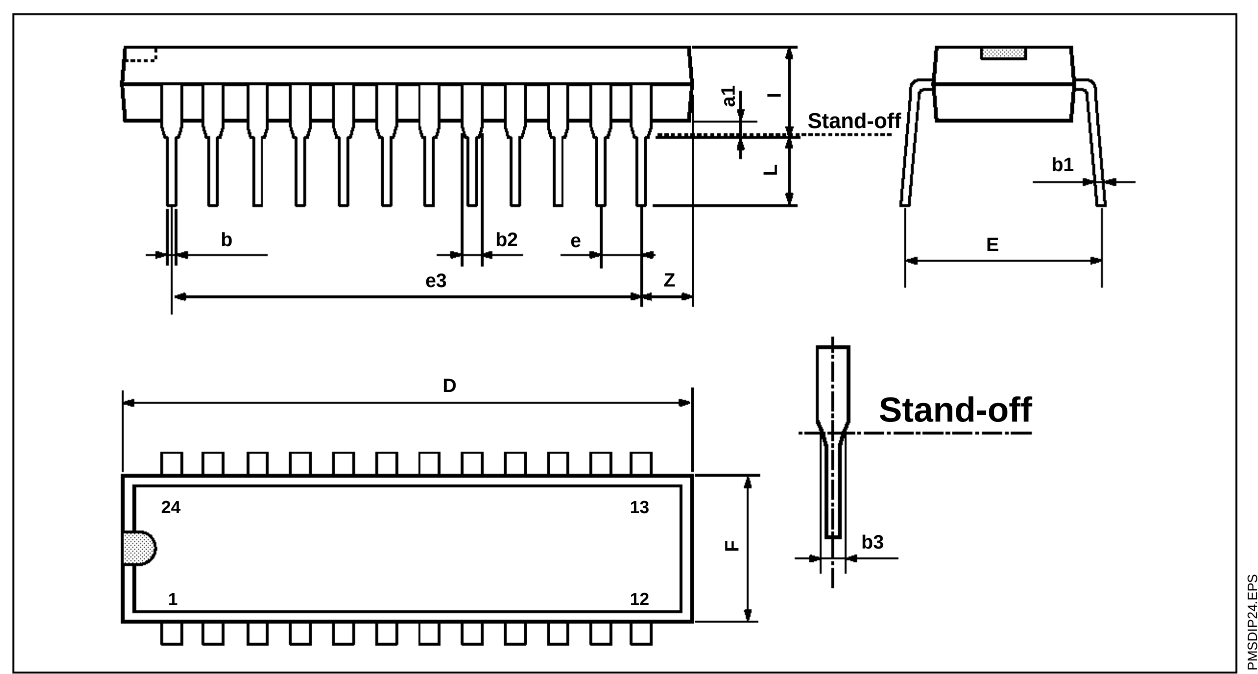
* S : Sumida Electric CO, LTD.



APPLICATION CIRCUIT



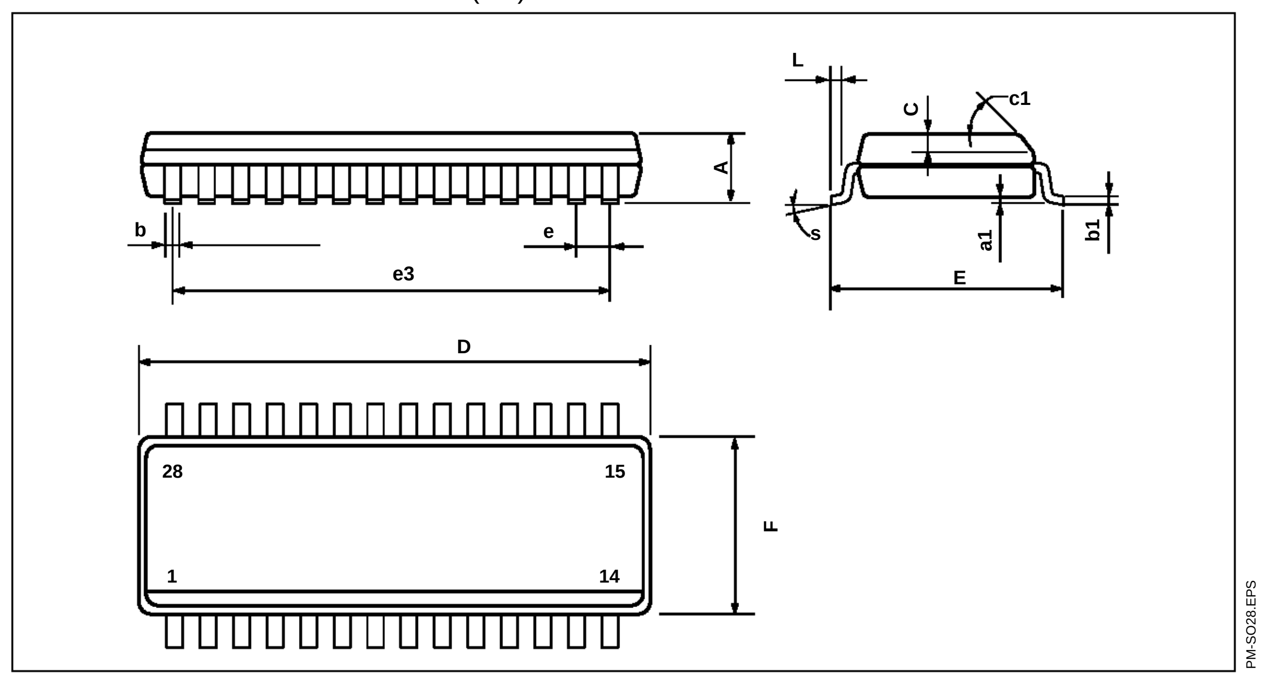
PACKAGE MECHANICAL DATA (TDA7222A)
24 PINS - PLASTIC SHRINK DIP



Dimensions	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A		3.3			0.130	
a1	0.51			0.020		
b	0.35		0.59	0.014		0.023
b1	0.2		0.36	0.008		0.014
b2	0.75		1.42	0.030		0.056
b3	0.75			0.030		
D			23.11			0.910
E	7.95		9.73	0.313		0.383
e		1.778			0.070	
e3		19.558			0.770	
e4		7.62			0.300	
F			6.86			0270
i			5.08			0.200
L	2.54			0.100		

SDIP24.TBL

PACKAGE MECHANICAL DATA (TDA7222AD)
28 PINS - PLASTIC MICROPACKAGE (SO)



Dimensions	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A			2.65			0.104
a1	0.1		0.3	0.004		0.012
b	0.35		0.49	0.014		0.019
b1	0.23		0.32	0.009		0.013
C		0.5			0.020	
c1	45° (typ.)					
D	17.7		18.1	0.697		0.713
E	10		10.65	0.394		0.419
e		1.27			0.050	
e3		16.51			0.65	
F	7.4		7.6	0.291		0.299
L	0.4		1.27	0.016		0.050
S	8° (max.)					

SO28.TBL

